



(12) **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:
14.09.2016 Bulletin 2016/37

(51) Int Cl.:
H02J 7/00 (2006.01) **H01M 10/48** (2006.01)
G01R 31/36 (2006.01) **H01M 10/44** (2006.01)
H01M 10/42 (2006.01) **H02J 13/00** (2006.01)

(43) Date of publication A2:
13.04.2016 Bulletin 2016/15

(21) Application number: **15186248.9**

(22) Date of filing: **22.09.2015**

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME
Designated Validation States:
MA

(30) Priority: **08.10.2014 JP 2014207511**

(71) Applicant: **Panasonic Intellectual Property Management Co., Ltd.**
Osaka-shi, Osaka 540-6207 (JP)

(72) Inventors:
• **YAMAGUCHI, Takao**
Osaka-shi, Osaka 540-6207 (JP)
• **HANAFUSA, Hiroshi**
Osaka-shi, Osaka 540-6207 (JP)

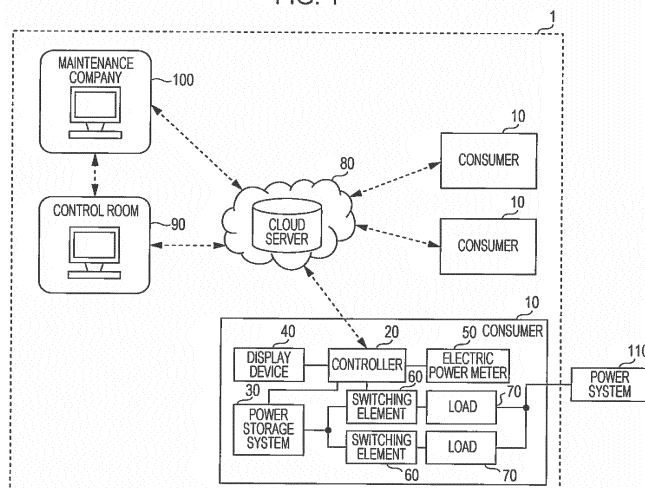
(74) Representative: **Grünecker Patent- und Rechtsanwälte PartG mbB**
Leopoldstraße 4
80802 München (DE)

(54) **POWER-STORAGE-SYSTEM CONTROL METHOD AND POWER-STORAGE-SYSTEM CONTROL APPARATUS**

(57) A power-storage-system control method includes: obtaining pieces of parameter information indicating respective states of assembled batteries (34); determining respective degradation levels of the assembled batteries (34) by using the obtained pieces of parameter information; grouping the assembled batteries (34) into a plurality of groups, based on the determined degradation levels; and executing at least one of first control and second control. In the first control, group designation is

performed in first descending order of priorities defined for the groups and corresponding to the degradation levels, and the assembled batteries belonging to the designated group are charged. In the second control, group designation is performed in second descending order of priorities defined for the groups and corresponding to the degradation levels, and the assembled batteries (34) belonging to the designated group are discharged.

FIG. 1





EUROPEAN SEARCH REPORT

Application Number
EP 15 18 6248

5

10

15

20

25

30

35

40

45

50

55

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	DE 10 2011 079874 A1 (BOSCH GMBH ROBERT [DE]; SB LIMOTIVE CO LTD [KR]; SB LIMOTIVE GERMANY G) 31 January 2013 (2013-01-31)	1-5,7,8, 10-13,19	INV. H02J7/00 H01M10/48
Y	* figures 1,2 * * paragraphs [0036], [0043] - [0048] *	6,9	ADD. G01R31/36 H01M10/44 H01M10/42 H02J13/00
Y	EP 2 667 479 A1 (NISSAN MOTOR [JP]) 27 November 2013 (2013-11-27) * paragraphs [0033] - [0052]; figures 1,2,4 *	9	
Y	JP H05 77680 A (ZEXEL CORP) 30 March 1993 (1993-03-30) * abstract * * paragraphs [0009], [0016], [0017] *	6	
			TECHNICAL FIELDS SEARCHED (IPC)
			H02J G01R H01M
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
Munich		18 April 2016	Berger, Josef
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

EPO FORM 1503 03.82 (P04C01)



Application Number

EP 15 18 6248

CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing claims for which payment was due.

☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due and for those claims for which claims fees have been paid, namely claim(s):

☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

☐ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.

☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.

☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:

☒ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:

1-13, 19

☐ The present supplementary European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims (Rule 164 (1) EPC).



**LACK OF UNITY OF INVENTION
SHEET B**

Application Number
EP 15 18 6248

5
10
15
20
25
30
35
40
45
50
55

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1-13, 19

Control method and apparatus for a power storage system
comprising assembled batteries

2. claims: 14-18

Control method and apparatus for a system comprising
distributed power storage systems

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 15 18 6248

5 This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

18-04-2016

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE 102011079874 A1	31-01-2013	CN 103889772 A	25-06-2014
		DE 102011079874 A1	31-01-2013
		EP 2736756 A1	04-06-2014
		US 2015147595 A1	28-05-2015
		WO 2013013869 A1	31-01-2013

EP 2667479 A1	27-11-2013	CN 103329392 A	25-09-2013
		EP 2667479 A1	27-11-2013
		JP 5598553 B2	01-10-2014
		KR 20130097794 A	03-09-2013
		US 2013285613 A1	31-10-2013
		WO 2012098794 A1	26-07-2012

JP H0577680 A	30-03-1993	NONE	
